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Increasing uncertainty in old age in Germany?

The development of social inequality in later life
since the mid-1980s

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INTRODUCTION

During the last decades, national economies have undergone strong structural changes. Internationalization, deregulation and liberalization processes – often summarized as globalization – accelerated these developments and forced firms to adjust to new market conditions. As a result, labor markets have been strongly impacted and re-organized. Employers demand more flexible employment forms, such as fixed-term contracts or part-time work, and thus increasingly try to transfer market risks onto their employees.

Compared to other modern societies, the German labor market and employment system can still be characterized as highly regulated and rigid (Esping-Andersen and Regini 2000). However, the German concept of market regulation has more and more often become the subject of severe criticism. Still, due to a strong insider/outsider-mechanism, especially qualified and well-established men in their mid-career are highly protected against employment flexibility (Kurz et al. 2002). As a result, firms tend to impose employment insecurities particularly on people at the ‘margins’ of the labor market, such as women (Buchholz and Grunow 2003) and labor market entrants (Buchholz and Kurz 2008).

However, for different reasons older workers are also expected to face a severe worsening of their employment situation in an era of globalization. First, older employees tend to be overrepresented in traditional industries and the agricultural sector, both of which have experienced a strong decline during the past decades. Second, the ongoing and accelerated technological progress increases the risk of devaluating qualification profiles. Especially for older employees in Germany this should be a problem because, the possibilities of adapting the older workforce to these accelerating structural and technological changes are rather restricted. This is due to the strong occupational boundaries in Germany and a weak infrastructure for lifelong learning (Blossfeld and Stockmann

1999; Buchholz et al. 2006). For a long time, Germany strongly ‘relied’ on generous early retirement programs to relieve the national labor market and to counterbalance the increasing labor market problems of older people in a ‘socially acceptable’ way (see, e.g. Wübbecke 2005, Buchholz 2006). However, in light of demographic aging and the economic burdening of the ‘public purse’ in the more recent past, the German government more and more tries to reverse early retirement by implementing pension reforms which increase the costs of early retirement for the individual.

The aim of this paper is to investigate how late career and retirement transitions have developed since the mid-1980s. More specifically, we ask if employment instabilities did indeed rise among older employees in Germany and if certain groups of older people especially suffered from such a development. Particular focus will therefore be given to the economic consequences of changes in late career stability. Our analyses are based on data from the German Socio-Economic Panel (GSOEP) and cover the years 1984 to 2007. We include women and men from Eastern and Western Germany as well as migrants. To capture the development of late career patterns, we compare three different birth cohorts, focusing on (1) the risk of unemployment and the chances of reemployment in the late career, (2) income mobility patterns in the late career, (3) the timing of the transition to retirement, and (4) the impact of these developments on the pension income.

We proceed as follows: In a first step, we will give a description of the German institutional setting and its influence on shaping late career processes and the transition to retirement. Specifically, we will describe the German employment regime, occupational system, and welfare state. Based on this institutional description, we present our hypotheses. After describing our data and methods in more detail, we finally present the results of our empirical analyses and conclude with a short summary and discussion.

INSTITUTIONAL CONTEXT

Type of economy and employment structure

Germany has been characterized as a flexibly coordinated economy (Mayer 1997; Soskice 1999). Long-term, institutionalized forms of cooperation based on trust are at the core of employment relationships in these economies. Characteristics of this type of economy include strong unions, an active role of the state in the market, workers’ participation,

collective wage agreements, a strongly standardized occupational system, a comparatively strong seniority system and extensive safeguards against dismissal. Although the rigidity of the German labor market has become the subject of a serious criticism since the 1980s, up to now the level of deregulation has been relatively low compared to other countries (Esping-Andersen and Regini 2000). Especially employees who are already established on the labor market, such as male employees in their mid career, but also older employees, still have a high level of employment protection that is guaranteed by law. This is illustrated, for example, by the fact that mass lay-off schemes have to consider age and seniority. Likewise workers' councils have to support the employment of older workers. All in all, it is nearly impossible to dismiss these employees in Germany.

However, at the same time, the employment structure has changed noticeably in the last decades. As in most other developed countries, Germany has experienced severe changes in the employment shares and situation of the three core sectors, that is (1) the drastic shrinking of the agricultural sector, (2) cyclical fluctuation and reduction of the classical production sector since the ending of the 'golden age' (Carlin 1994) in the early-1970s, (3) massive restructuring in firms and organizations (through rationalization, downsizing, outsourcing, or lean production) due to rising global competition and technological development, especially in the classical industrial sector (Bieber et al. 1991; Döhl et al. 1995; Kilper 1996), (4) the expansion of the public sector until the mid-1980s (Geißler 2002), and (5) a rising labor demand for personal and business services (Schmid 1998).

According to these sectoral shifts, the German occupational structure has also changed in the last decades (Geißler 2002). Until the 1970s, almost half of the employees were blue-collar workers. By 2000 their share had been reduced to a third. At the same time, the share of white collar workers and civil servants increased strongly from around 20 percent in 1950 to almost 60 percent in 2000. The proportion of self-employed workers decreased slightly, while the share of family workers declined strongly and almost vanished in 2000 due to the massive shrinking of the agricultural sector.

Older employees' share in these declining industries and occupations is comparatively high. They often work in the industrial and agricultural sector, and their share is quite low in expanding sectors such as the public or service sector (Blöndal and Scarpetta 1998). Many older employees are blue-collar workers, and relatively few are white-collar workers or civil servants (Mayer and Huinink 1990). Consequently, older men and

women are particularly well-represented in sectors or jobs that are shrinking and strongly exposed to economic pressure and rationalization which makes us expect that their labor market chances should have worsened considerably, despite the fact that they enjoy in general high employment protection in Germany.

Occupational boundaries and lifelong learning

Germany has a closed occupational structure produced by relatively high standardization and certification. This limits employees' possibilities for mobility on the labor market.

Occupational differentiation is quite old in Germany. But especially since the expansion of the educational system in the 1950s, the German system has been highly standardized and stratified compared to other countries (Allmendinger 1989). Since then, the pattern has been to follow general schooling with vocational training or attendance at a technical college or university.¹ Today, most young people enter vocational training in the dual system for about three years. Successful participants receive a standardized certificate, which allows them to move between firms, but at the same time hinders moves between occupations, since vocational training is very specific.

Consequently, the strong German certificate system produces labor market boundaries along different occupations. Changing occupational tracks, even if abilities in different occupations might be comparable, is almost impossible for those without the appropriate certificate.² Vocational certificates thus strongly confine the individual to specific and narrow occupational segments of the labor market and to clearly defined job positions. As a result, people who have been trained for occupations that are losing relevance in times of accelerated economic change and transformation of the economy face serious problems with regard to their possibilities of reemployment. In this respect, the German system differs strongly from those of other countries. An extreme counterexample is the U.S., where occupations are less standardized, occupational changes are possible, and qualification takes place via training on the job (Allmendinger 1989).

1 For more detailed overviews see Kurz et al. (2001).

2 Such certificate-based occupational boundaries should exist much less for high qualified persons (e.g., persons with university degrees). But for those who have completed vocational training, or for the un- and semi-skilled, occupational definitions restrict mobility chances on the labor market.

Aside from strong occupational definition, another important characteristic of the German system is the lack of opportunities for entering vocational training over the whole life course (Blossfeld and Stockmann 1999). Vocational training in Germany is more or less limited to a short period in one's youth, and it is difficult to acquire vocational degrees in later life. Consequently, there is a long-term life course effect of occupational qualification that makes it hard for older German employees to adapt to structural changes in the economy and to the need for new 'qualification-profiles.' The expectation thus is that structural adaptation in Germany will be mainly realized through generational replacement rather than by transferring new qualifications to the existing labor force (Blossfeld and Stockmann 1999).

Welfare state arrangements

The specific welfare state ideology of a country has different implications for the later career as well as for the transition into retirement and retirement income. The German welfare regime, which is classified as belonging to the conservative cluster (Esping-Andersen 1990), is characterized by a strong tendency towards decommodification and an ideology of status maintenance. The welfare state is strongly transfer-oriented and thus provides economic security for people who are not employed (for example, by paying comparatively high and long-lasting support in the case of unemployment).

With regard to the pension system, Germany developed against the bismarckian background a pay-as-you-go insurance system. The national pension system is contribution-based, securing the maintenance of living status that an individual has achieved during his or her employment career. By international standards, the German public pension system is quite generous, with net retirement incomes at about 70 percent of pre-retirement net earnings for long-time contributors. The corresponding U.S. net replacement rate is only about 50 percent (Börsch-Supan 1998). Not surprisingly, public pensions constitute the major source of income for the elderly in Germany (Börsch-Supan 1998), although private pension has gained importance in the most recent years.

The mandatory retirement age is 65. However, since the beginning of the 1970s, it has become increasingly unusual to work until this age. While active employment policies are comparatively weak in Germany, early retirement schemes have been broadly extended to relieve the labor market and to counterbalance the increasing labor market problems that older employees have faced with the accelerated structural and

technological changes of the economy. Beginning with the introduction of the flexible retirement age of 63 with the 1972 pension reform, pathways out of employment before the official retirement age became more feasible in Germany. For a long time retiring before the age of 65 was not linked with a strongly reduced pension level. In fact, pension loss was quite moderate, and the reductions bear no relationship to reductions that would be actuarially neutral (Arnds and Bonin 2002). Transitions to early retirement were thus not very 'costly' for individuals. As a result, a strong decrease of old age employment could be observed in Germany. For example, the employment rate of men aged 60–64 in West Germany decreased from a very high 73 percent in 1970, to around 30 percent in the 1990s (Buchholz 2006).

Besides the public pension system, extensive 'welfare state subsystems' exist (Guillemard 1991) enabling an earlier withdrawal from the labor market for older employees in Germany. Unemployment insurance plays an important role in this context. Employers, often working together with unions and workers' councils, have made more and more use of this option to get rid of older employees before the official as well as the flexible retirement age. Workers were dismissed at age 57 (and four months) and could claim regular unemployment insurance benefits for the next 32 months. Often these unemployment benefits were supplemented by additional compensation payments by the employer (Arnds and Bonin 2002). When the intermediate period in unemployment insurance ended at age 60, these elderly became eligible for a special retirement scheme designed for workers who have experienced a longer period of unemployment (dubbed 'old age pension following unemployment'). Between 1990 and 1992, in East Germany it was even possible to use this special pathway to early retirement when people became unemployed at the age of 55.

As a result, unemployment rates among older people increased consistently until the end of the 1990s (Buchholz 2006, 2008). However, developments changed remarkably in recent years. Since 1998, unemployment rates for older people drastically decreased in Germany although overall unemployment rates in that time period rose consistently (Koller et al. 2003). A possible explanation for this trend is the establishment of a part-time retirement program (the so-called 'Altersteilzeitregelung') which in effect 'replaced' other early retirement schemes. In 1988, this legal regulation was institutionalized and gave older employees the possibility of reducing their working hours after the age of 55 and of working on a part-time basis until retirement (Arnds and Bonin 2002).

In the more recent past, the German government has aimed to increase old age employment again to face the problems arising from demographic aging and to relieve the public purse of the massive rise of state expenditures due to the extensive use of early retirement. With the 1992 and 1999 pension reforms, access to early retirement programs was increasingly restricted. This was achieved by gradually closing some early retirement pathways, raising the mandatory retirement age and increasing pension reductions in case of an early exit from the labor market. Also the 2001 pension reform gradually aimed to reduce pension benefits, and it additionally strengthened the incentives of private pension savings. Most recent reforms have gone further in this direction. With the so-called 'Hartz' labor market reforms, the possibilities of early retirement after unemployment were reduced and the current German government recently increased mandatory retirement age to 67.

However, even despite these latest reforms, the German pension system can still be described as comparatively generous compared to many other modern societies. Although pensions are calculated based on the number of years of contribution (meaning that an earlier transition into retirement is connected with reductions in pension income), actuarial adjustments are still unfair and losses in pension income in case of early retirement are still rather moderate compared to other countries.

HYPOTHESES

Social change: increasing trend towards more instable late careers since the mid-1980s?

As outlined above, Germany can be characterized as a comparatively regulated labor market which strongly restricts employers' possibilities of flexibilizing the workforce in an era of globalization (for example, by adjusting wages or imposing mass layoffs). This is especially true for employees who are already established on the labor market, including the group of older employees. Instead, generous early retirement programs were extensively used in the past decades to allow for the downsizing of the workforce, restructuring of the national economy and the relief of the German labor market. All in all, we thus expect late careers in Germany to be rather stable compared to other countries, especially liberal-type countries such as the UK or the US. However, we still expect changes across time. As discussed above, the options for early retirement were increasingly restricted by the German government in the more recent past. Therefore, we assume that – compared to the 1980s and 1990s – the

most recent cohorts of older people try to delay the transition to retirement or, in case they are not successful in postponing retirement, their costs for an early withdrawal from the labor market have increased.

Despite the fact that pension reforms demand older people to stay employed longer (because if they retire early they increasingly have to 'pay' for this early transition to inactivity), the German government's effort to increase the employability of older people is still relatively low and has not changed much in the past decades. As we discussed above, strong labor market boundaries arising from the German educational and occupational system and a hardly existing infrastructure for lifelong learning confront especially older people with labor market risks, since their traditional occupations and sectors they used to work in tend to vanish in an era of accelerated structural and technological change of the economy. As a consequence, we expect the chances of reentering employment after unemployment to be rather low and the risk of long-term unemployment to be high for older people in Germany. As the German pension system is contribution-based, we furthermore assume that these instabilities in the late career are connected with losses in the pension income for these people.

Social inequalities: who is affected by instable late career and how did this affect the development of social inequalities among older people?

Educational qualification and occupational class

From previous studies that focused on young and mid-career employees in Germany (Kurz et al. 2006, Buchholz and Kurz 2008), we know that employers tend to shelter certain groups of employees, namely qualified and established employees, from employment flexibility. According to Breen (1997), employers try to bind qualified service class employees to their enterprise in order to secure productivity, innovation, etc. of the firm even if market risks have risen in general. By contrast, especially unskilled and semi-skilled employees are experiencing a strong flexibilization of their labor market position.

Among the group of older people, this segmentation with regards to different qualification levels and occupation classes might be even more pronounced. The rapid technological changes in the past decades that could be observed especially in the industrial sector, made particularly low-qualified jobs redundant among which especially older people tend to be overrepresented. We expect risks of redundancy to be lower for

highly educated older people and their chances of reemployment should be higher. In contrast, the chances of reemployment for low-qualified industrial workers should be very low, since their jobs simply vanished and they lack the necessary qualification certificates for entering service sector jobs. All in all, we thus expect that the transition to retirement strongly depends on educational qualification and the occupational class of an individual. In addition to the group of highly qualified elderly workers, we also expect the self-employed to retire later because they are not automatically covered by the public pension system and their incentives to remain employed should be rather high.

However, an important aim of our study is not only to understand which groups of older people have a higher risk of experiencing late career instability, but also to understand how social inequalities among older people have developed over time. Can we observe a growing gap between older people with different educational qualification and of different occupational classes since the mid-1980s? And do the groups that experience high late career instability increasingly have to 'pay' for this because the reductions of pensions for early retirement have been increased with the latest reforms? Can we thus find increasing social inequalities among the elderly in Germany?

Branch of industry

We expect that employees of the shrinking and declining sectors, namely the extractive and transformative sectors, should drop out of employment earlier than employees in the service sector. They should also have a higher risk of unemployment in the late career. Especially those in the transformative or classical industrial sector should experience a higher risk of retiring early and becoming unemployed. Since the 1980s, the industrial sector has shrunk considerably, and the need to reorganize has sharply increased due to rising competition from other countries (Castells 2000). Furthermore, the potential for rationalization and reorganization in this sector, based on the use of new technologies such as computer programmable machinery, should be very high when compared to the service sector. In the service sector rationalization is less possible as 'products' are attached to persons. Compared to employees in the private sector, employees in the social service, which in Germany largely overlaps with the public sector, are likely to retire later and be better protected against unemployment as their employer is the state.

Firm size

From other empirical studies (see, e.g. Kurz et al. 2006, Buchholz and Kurz 2008) as well as from theoretical contributions in the field of labor market sociology (Doeringer and Piore 1980), we know that internal labor markets of larger firms offer additional employment security for their employees. This is especially true for a country like Germany with extensive labor market regulation because the existence of a workers council is closely linked with the number of employees in a firm. Thus, the result of other empirical studies is that employees in larger firms tend to experience a lower risk of dismissal and unemployment.

Still, the situation might be different for the group of older employees. Due to the crisis of mass production (Castells 2000), large firms in Germany, especially in the industrial sector, had to downsize to be able to cope with changing market demands. However, within the regulated German economic system, the possibilities of enterprises for reducing the workforce are strongly limited. Indeed numerical flexibility is almost impossible. As a result of the extensive dismissal protection especially in larger firms, huge enterprises realized their increased need for downsizing by using early retirement programs to reduce their staff, including the pathway to retirement after unemployment (Buchholz 2006, 2008).

Therefore, we expect that an investigation of firm size is crucial to various different trends on in the German labor market, namely the downsizing of larger firms by using the unemployment insurance as an institutionalized pathway to early retirement in Germany on the one hand, and the power of internal labor markets on the other hand. As a result, we assume that the risk of unemployment can be observed in larger firms *and* smaller enterprises. However, the mechanisms producing this higher risk of unemployment should be very different for larger firms on the one hand and smaller ones on the other hand. In case of larger firms, we expect unemployment to be a kind of early retirement; in the case of smaller firms this higher risk should result from less developed internal labor markets.

With regard to mobility patterns in the late career, we expect employees of very large firms to enjoy a high protection of their wages due to internal labor markets.

Population groups

We expect to reveal strong differences among the different population groups that are part of our study: West Germans, East Germans and migrants.

For migrants, we expect a higher level of employment insecurities than for the West German population. In general, migrants hold lower educational degrees and tend to be overrepresented in jobs that are affected by economic restructuring, i.e. manual industrial jobs. However, when controlling for educational level or occupational class, significant differences between migrants and West Germans should disappear or at least decrease.

We also expect that older employees in the newly formed German states face greater late career instability than West Germans. Even after 18 years after reunification, the economic situation between Eastern and Western Germany is very different. Additionally, we know that besides women and disabled workers, older people were especially affected by the reduction of the workforce connected with the transition from a planned to a market economy (Ernst 1996, Buchholz 2008). Between 1990 and 1992, their early withdrawal from employment was even encouraged by the government which introduced a special and very generous early retirement program allowing older people to leave employment already at the age of 55.

Gender

The conservative German welfare regime is characterized by a strong traditional model of intrafamilial division of labor. Particularly in West Germany, women tend to be those responsible for childcare and household. If at all, women are very likely to work part-time in order to be able to combine their job with family and household obligations (Kurz 1998, Blossfeld and Rohwer 1997). As a result, interrupted employment careers are still normal for many women. This should be reflected in their lower incomes compared to men.

With regard to the level of late career stability, we expect that women should *not* face higher unemployment risks than men in general. We know that the German labor market is strongly segregated. Women are less likely to be employed in manual industrial jobs, which have been set under high pressure in the process of economical restructuring compared to female dominated service jobs. Regarding the timing of retirement, one could expect that women tend to retire significantly earlier than men. First, the German pension system allows for earlier retirement for women at the age of 60 instead of 65 (Arnds and Bonin 2002). Second, other studies have observed that couples coordinate their retirement transition (Drobnič and Schneider 2000). As women tend to be younger than their husbands, they often withdraw from the labor force at an earlier age than men.

DATA AND METHODS

In our empirical study, we use data from the German Socio-Economic Panel (GSOEP) for the years 1984 to 2007. The GSOEP is a representative yearly household panel which has been collected by the German Institute for Economic Research (DIW). In the GSOEP, there is information on employment and educational careers, as well as on the family, household and income situation on a yearly basis. For the years 1984 to 1989, there is only information for Western Germany; since 1990, the GSOEP also includes East German households.

In our sample for the analysis of late career stability, we included West Germans, East Germans and persons with migration background who were employed at the age of 50. Based on this definition, our starting sample is based on 1,948 men and 1,313 women of whom 56 percent are West Germans, 20 percent East Germans, and 24 percent migrants. For analyzing the transition to retirement, we extended our sample to those persons who were employed or unemployed at the age of 50. Following this definition, our sample for the analysis on retirement are based on 2,088 men and 1,480 women of whom 54 percent are West Germans, 22 percent East Germans, and 24 percent migrants.

To estimate developments over time, we compare three different birth cohorts: 1934-1939, 1940-1946, and 1947-1951. This definition is based on the economic situation that the people of our sample faced at the age of 50. The older cohort 1934-39 reached the age of 50 between 1984 and 1989, when unemployment rates started to increase in Germany. Their late career was strongly shaped by the high unemployment rates of the 1990s. The middle cohort 1940-46 turned 50 in the years between 1990 and 1996. Thus they also started their late careers in times of high unemployment. However, this cohort might have already profited from the economic upswing that started in the late 1990s. Finally, the youngest cohort 1947-51 turned 50 between 1997 and 2001 and might have profited from the decreasing unemployment rates in the more recent past, but might have been affected also by the latest pension reforms in Germany as well.

In our empirical analyses, we employ event history methods in order to model the time dependent process of the late career and retirement transition appropriately. The starting time of our models is reaching the age of 50 and still being within the labor market. We then follow these subjects until they reach the destination state, until they leave the sample or until they reach 70 years of age (in these last two cases, the people are right censored in the analyses).

Our dependent variable *transition to unemployment* is based on respondents' self-reported labor force position. In the analyses, we focus on the *first* transition to unemployment after age 50. For these analyses, we selected only those people who were employed at the age of 50. When investigating the *chances of reentry after unemployment*, we consequently analyze the chances of reentering employment after this *first* unemployment episode in the late career. We define the *transition to retirement* as the point in time upon which the subjects began receiving income from direct pension claims (state retirement pension, occupational pension, or private pension).

Table 1: Core explanatory variables

Variables	Measurement and categories used
Population groups	West Germans, East Germans, migrants
Birth cohorts	1934-39, 1940-45, 1946-51
Labor market situation	Yearly average unemployment rate (for East and West Germany)
Gender	Men versus women
Job characteristics	Full-time vs. part-time, self-employment, marginal employment
Characteristics of the late career	Unemployment, part-time, marginal or self-employment experience (in years)
Individual retirement age	Age upon first receipt of income from direct pension claims
Occupational class	Based on Erikson-Goldthorpe (1992) classification
Educational and occupational qualification	5-point scale on the basis of CASMIN (see for example, Brauns and Steinmann 1999)
Firm size	4 categories based on the number of employees
Sector	Based on Singelmann (1978) classification; modified by collapsing private market services into one category

Note: We control for missing information in our models.

To analyze the impact of labor market flexibilization and instable late career on the economic situation of older people, we focus on the development of *income mobility patterns* in the late employment career. We define a 10 percent increase in wages adjusted for inflation (gross income per hour) as upward mobility and a 10 percent decrease in income

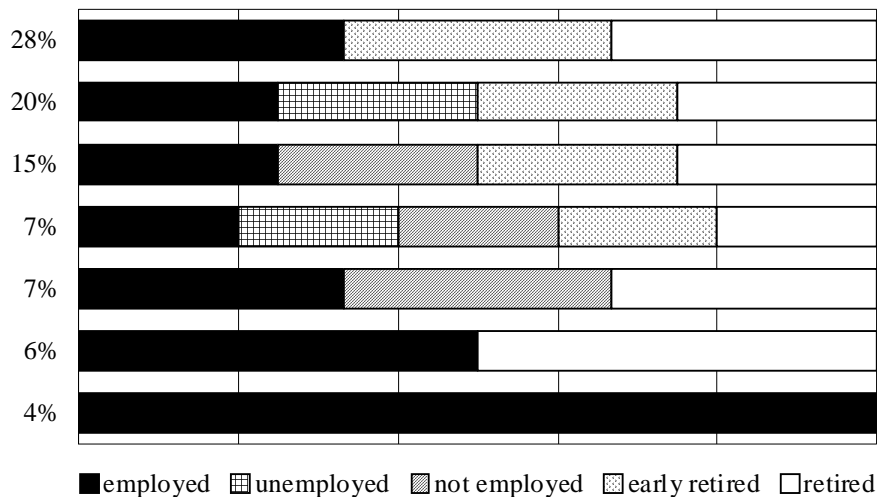
as downward mobility. For our longitudinal analyses, we use logistic regression models (Blossfeld and Rohwer 2002). Finally, we estimate the absolute *pension income* with the help of linear regression models.

Table 1 gives an overview of the core explanatory variables used in our models and the increments of measurement.

RESULTS

To get a first idea of employment transitions in old age in Germany, figure 1 gives an overview of the relevance of typical late career and retirement pathways of 50 to 66 year old men and women. As can be seen, only a minority, namely 6 percent of the elderly, enters retirement at the regular retirement age of 65 years and only a very small share of 4 percent is still employed at this age. The vast majority of the elderly, namely about 80 percent, leaves employment before mandatory retirement age and thus retires early. Only less than the half of these early retirees makes a direct shift from employment to early retirement. Indeed, many of them experience an indirect transition from employment to early retirement with unemployment being the most significant pathway.

Figure 1: Sequence analysis of important late career and retirement pathways of 50 to 66 year old men and women^a



Notes:

a For the sequence analysis, we selected only those people of our sample with full information for the age span under observation, that is, the age 50 to 66 years.

All in all, these results are in line with our theoretical framework which argues that in countries with regulated labor markets, a weak orientation towards continued training and a well-developed pension system, early retirement is very dominant and other forms of employment flexibility in old age, such as interrupted employment careers, are very unusual.

Late career development since the mid-1980s

In the first step of our multivariate analyses, we focus on the question of how late career chances of older people in Germany have developed since the mid-1980s. For this purpose, we analyze (1) the risk of becoming unemployed after the age of 50, (2) the chances of reemployment for those who became unemployed and (3) the income mobility chances of older people in Germany.

The risk of old age unemployment

Table 2 presents the results for the transition to (first) unemployment after the age of 50. As can be seen, the transition to unemployment takes particularly place in the age groups 55 to 57 and 58 to 59. As outlined above, for people who become unemployed after having reached the age of 57 years, a financially highly secured pathway to retirement was available within the German pension system for a long time (see also, Buchholz 2006, 2008). For them unemployment in old age thus is rather a form of early retirement than a real labor market risk. This is not the case for those who become unemployed between the ages of 55 and 57 for whom we also find a positive and significant effect in our analyses. However, as further analyses have shown, this empirical finding can be mostly attributed to the fact that in East Germany a specific early retirement pathway existed in the immediate reunification phase, allowing older employees to claim benefits from the unemployment insurance not only for 32 months but for 5 years. This program was very popular and the majority of the elderly made use of this East-specific pathway to retirement between 1990 and 1992 (Buchholz 2008). Indeed, survival analyses with our East German sample indicate that here transitions to unemployment in old age are a reality already among younger age groups. 30 percent of the East Germans become unemployed until reaching the age of 57 years. For West Germans, this figure amounts only to about 10 percent of the sample.

With regard to the development of old age unemployment across cohorts, our results indicate that the youngest birth cohort 1946-51 has a lower risk of old age unemployment than earlier birth cohorts. This

means that the unemployment pathway to retirement lost in significance across time. This finding can be attributed to both, the increasing efforts of the German government to increase old age employment again by reforming the pension system and raising the costs for early retirement and the fact that Germany experienced an economic upswing in this time. However, survival analyses showed that even in the youngest cohort under study, old age unemployment is still very widespread. 19 percent of cohort 1946-51 those who were employed at age 50 became unemployed until the age of 58 years. In cohort 1934-39, this figure amounted 24 percent.

As expected, the ongoing tightness of the East German labor market is mirrored in our empirical results. The risk of leaving the labor market via unemployment is by far higher in East Germany than in West Germany. Also migrants have a higher risk of becoming unemployed than West Germans. However, when controlling for occupational class and branch of industry, this effect is no longer significant. As hypothesized, migrants' higher risks of old age unemployment can thus be attributed to the fact that they are overrepresented among the low qualified workforce and in the transformative sector. Both labor market segments have strongly decreased in the process of technological change and deindustrialization of the past decades.

Also with regard to occupational class, our hypothesis is confirmed. Self-employed as well as those employed in higher and lower service classes and routine non-manual employees enjoy high protection against old age unemployment compared to skilled manual workers. Especially, among the un- and semi-skilled industrial workers the risk of becoming unemployed is very high. This trend is also mirrored in the models in which we included the qualification level instead of occupational class. However, as model 6 indicates, we can find an increasing importance of the qualification level across cohorts. Lowest qualified, that is, those with lower secondary education and lacking occupational qualification, could not profit from the economic upswing and the resulting decreasing late career unemployment risks in the youngest cohort. On the contrary, they are left empty-handed in unemployment while penalties for very early retirement were increased at the same time.

The effects for branch of industry show the expected direction. In the shrinking and declining transformative sector, the risk of old age unemployment is very high, while it is very low in the social service sector. Here, it is important to note that women, who are overrepresented in the branches with lower unemployment risks, could not profit from this sector-specific protection as much as they should have been able to.

When additionally controlling for branch in model 3, the effect for women becomes significantly positive.

As hypothesized, the effect of firm size on old age unemployment is indeed mixed. Both, in smaller and larger firms the risk of becoming unemployed is high. However, as outlined in our hypotheses section, these similarly directed effects of firm size represent very different mechanisms going on in the German labor market, namely the downsizing of larger firms by using the unemployment insurance as an institutionalized pathway to early retirement on the one hand, and the power of internal labor markets on the other hand.

Finally, we do find that an individual's early and mid-career development is of importance for late career stability, too. The more years a person was unemployed before the age of 50, the higher is this person's risk to become unemployed after the age of 50, too.

Chances of reemployment

Due to the rigid labor market structures, the strong occupational boundaries and specific early retirement regulations designed for older unemployed, we expected older people in Germany, once unemployed, to have severe problems of becoming reemployed again. Indeed, we find that only 34 percent of those who became unemployed after the age of 50 succeed in finding a job again. The risks of remaining unemployed become even more severe with increasing age. Thus, for the majority of the elderly the first transition to unemployment after the age of 50 is a final exclusion from employment and they sooner or later end up in early retirement (see also the results of our sequence analysis above).

The high risk of long-term unemployment in old age did not decrease across cohorts although the penalties for early retirement were increased by the German government. Occupational class and educational level only slightly influence the chances of reemployment. Only for self-employed, who are usually not covered by the social security system, we find a significantly positive effect. In case of the educational level, it is especially the lowest qualified elderly having problems of finding a job again. As more detailed analyses have shown, these patterns for occupational class and educational level are relatively stable across cohorts. Contrary to our results on the risk of becoming unemployed in old age, human capital no longer influences individuals' labor market chances once older employees got are unemployed. Apparently, the 'stigma of being old' is stronger than the signals of an individuals' human capital. Indeed, other studies have shown that employers'

prejudices against older employees are very strong in Germany (see, for example, Koller and Gruber 2001).

If we combine these empirical results with our findings for the risk of becoming unemployed which we presented above, it becomes clear that social inequalities in old age increased in Germany with regard to unemployment. As shown in our analyses for the risk of unemployment, especially already privileged groups of the elderly in the youngest cohort are able to avoid the unemployment pathway to retirement and can thus meet the expectations which have been set by the German government in the more recent past. In contrast to them, the lowest qualified face increasing problems avoiding old age unemployment, and as our empirical analyses on the chances of reemployment show, the chances of escaping old age unemployment did not increase at the same time for the lowest qualified.

Once they are unemployed, East Germans no longer differ from West Germans. For migrants, we find a significantly higher risk of remaining unemployment compared to West Germans and these differences can no longer be explained as a result of migrants' holding lower educational levels and working in lower occupational classes. Also for women, we now find a significantly higher risk of remaining unemployed.

As hypothesized, our empirical results indicate that people who were employed in the transformative sector before becoming unemployed have a lower chance of becoming reemployed again compared to elderly formerly employed in services. The reason for this finding is that within the process of economic restructuring and opening of markets, the German transformative sector was strongly put under pressure and many jobs of this particular branch simply vanished in Germany. Within a highly standardized occupational system where certificates are often linked to specific branches, too, and with Germany having only an underdeveloped infrastructure for lifelong learning, there is hardly a chance to find a new job in a different branch of industry.

With regard to the size of the firm in which an older person was employed before becoming unemployed, our results show that those who have been employed in a very large firm have a higher risk of remaining unemployed. This result can be explained by the fact that for these older people unemployment is usually a form of early retirement and not a labor market risk (Buchholz 2008, see also our results presented above). Additionally, they normally receive high severance payments from their former employer. All in all, the finding that their risk of remaining unemployed is the highest can thus be explained by the fact that they simply do not seek for a job.

Also those who were employed in small and middle-sized firms face a high risk of longterm unemployment. However, compared to those who have been employed in very large firms, these older unemployed cannot benefit from additional severance payments from their former employer.

Late career income mobility

In the following, we focus on the question how the financial situation of older people develops in the late career stage. Therefore, we present the results of direct and indirect income downward mobility (see Table 4) and upward mobility (see Table 5).

Women as well as East Germans face a worse income development in their late careers than men and West Germans. Their risks of downward mobility are significantly higher, and their chances of upward mobility are significantly lower. Also migrants seem to be worse off as their risk of downward mobility is higher than that of West Germans. Across cohorts, the income development of elderly seems to have worsened. Compared to the oldest cohort, the youngest cohort has a higher risk of income losses in late career and worse chances of improving the income. The worsened upward mobility in the youngest cohort under study surprisingly especially affects the highly qualified elderly (see model 6). Apparently, their increasing attachment to the labor market in old age which was mirrored in our analyses in their decreasing utilization of unemployment as an early retirement pathway across cohorts is connected with a worsened income development in the late career.

Experiencing old age unemployment as well as phases of non-employment decrease upward as well as downward income mobility compared. Especially the lower risks of income losses might be surprising at first sight. However, it has to be kept in mind that unemployment in old age is usually a permanent state in Germany, usually followed by retirement and not by re-employment. There is hardly a chance for older unemployed to find a job again and as a result, this also reduces their risks of income losses. However, additional descriptive statistics with our data have shown that of those few unemployed who succeed in finding a job again, this is often connected with income losses. Approximately 50 percent of them have to accept a worse income than before when they reenter employment, while only 25 percent of the re-employed benefit from income growth.

Also among those being employed, we do find significant differences. All in all, full-time employees income development is the best compared to marginal employed and part-time employed. Thus, those who show

greatest labor market attachment and hold a ‘standard’, full-time contract, are best sheltered against income losses and have the best chances of increasing their income in late life.

The results for occupational class, job prestige and educational level show the expected direction. In general, we can state that holding higher educational levels and being employed in higher occupational classes or jobs with a higher prestige, significantly decreases the risk of downward mobility and significantly improves the chances of upward mobility.

As expected, the risks of income losses are significantly lower in huge firms compared to medium-sized firms. Additionally, working in the social service sector is a safeguard against income losses in later life; working in this sector even increases the chances of income growth. Also for employees in the industrial sector in which unions are very powerful in Germany, we find a positive effect for upward income mobility.

Transition to retirement

In the last step of our analyses, we will focus on the transition to retirement, more specifically, the *timing* of the transition to retirement as well as on the *level* of retirement income. For these analyses, we included *all* people who have been on the labor market at the age of 50 years, that is, those being employed *or* unemployed.

The timing of the retirement transition

As described above, early retirement has been extensively used in Germany to cope with increasing economic insecurity and flexibility demands on the regulated labor market. However, in light of demographic aging and high financial burdening of the German pension system, the German government tried with more recent reforms to increase the retirement age. Indeed, our results presented in Table 6 suggest that there already is some reversal visible. Compared to cohort 1934-39, later birth cohorts retire later. Even between the two younger birth cohorts 1940-45 and 1946-51 there exists a significant difference with those born in 1946-51 retiring even later. These cohort differences cannot be explained by a higher educational level in younger cohorts. The effects for cohort remain significant even after controlling for qualification or occupational class.

However, as the cohort-specific product limit estimations indicate these results should not be overestimated. Indeed, there is no clear reversal and differences amount only to some percentage point. For more than half of the persons of our sample the transition to retirement takes place before

reaching the mandatory retirement age of 65 years, and at the flexible retirement age of 63 years only 52 percent of the cohort 1934-39 and 56 percent of birth cohort 1940-45 have not retired yet.

Women retire earlier than men which can be explained by the fact that for women the mandatory retirement age in Germany is lower than for men.

In the models presented in Table 6, there exist no significant difference between East and West Germans. However, it has to be noted that these models control for the fact whether the transition to retirement takes place after an episode of unemployment or not. As our results for the transition to unemployment have shown, the risk of old age unemployment is by far higher for East Germans than for West Germans. When not controlling for unemployment before the transition to retirement, we find that East Germans retire significantly earlier than West Germans. However, this is due to their higher risk of old age unemployment which allows a very early withdrawal from the labor market in Germany.

For migrants, we find that they retire significantly later than West Germans. However, again it has to be noted that we control for the employment status at the age of 50 years at the same time as well as for the fact whether a person was unemployed before retiring or not. If these control variables are not included in the models, the significant effect for migrants vanishes.

Not surprisingly, late career instability strongly accelerates the transition to retirement. When older employees become unemployed, this significantly increases an early transition to retirement. As shown above, the chances of re-employment after unemployment are comparatively low in Germany and old age unemployment rather tends to be a pathway to (early) retirement. However, the penalties for this pathway to retirement have been increased.

At first sight surprisingly, those who have been employed at the age of 50 retire earlier than those who were unemployed at the same age. Still, it has to be noted that a substantial amount of the transitions to retirement take place *before* persons reach legal retirement age as several early retirement pathways exist in Germany. However, there are some restrictions with regard to eligibility for early retirement programs. For example, 35 years of employment are requested for claiming early pensions at the age of 63 years. Thus, the empirical finding that those employed at the age of 50 years retire earlier than those who were unemployed is no longer surprising.

Those who were employed in jobs of higher occupational classes retire comparatively late. That higher qualified experience the transition to

retirement later is also reflected in our models which include the educational level instead of occupational class. Highly qualified older people with university degree retire significantly later compared to people holding a lower secondary degree with occupational qualification (model 6). Model 4 reveals that this is particularly true for the youngest cohort 1946-51.

As additional analyses have shown, the influence of qualification does not change across cohorts. All in all, this again highlights that early retirement is very widespread in Germany. Compared to the results for the risk of unemployment presented above, the influence of qualification seems to be only of minor importance for the transition to retirement. Thus, qualification influences whether a person experiences the transition to retirement directly or indirectly after an unemployment episode.

As expected, self-employed retire very late. They are usually not covered by the public pension system; thus their incentives to remain employed are rather high. Also people who were only marginally employed for several years retire comparatively late. In marginal contracts, employees often do not acquire pension entitlements. Thus, the incentive to remain employed is also very high because of the financial necessity. In contrast, experiencing unemployment in the late career or being part-time employed, accelerates the transition to retirement. As mentioned above, old age unemployment and part-time employment are very important and popular early retirement pathways in Germany.

Firm size and branch of industry do not have an effect on the timing of the retirement transition at all and including them into our estimations does not improve our models. This is why we do not present these findings in Table 6. The variables controlling for the spouse's employment status are not significant.

Pension income

The final question of our empirical analyses is how the income situation of the elderly in Germany has developed since the mid-1980s by estimating the level of pension incomes. The results are presented in Table 7.

First of all, our analyses show that younger cohorts' pensions seem to be higher. However, it has to be noted that with our data it is not able to control for the persons' employment income during his or her entire working live. In Germany, the working income strongly determines the level of pension benefits. Thus, if employment incomes have increased, this directly affects the individuals' pension. Form other sources we know

that as a result of the economic boom in the 1960s and early 1970s employment incomes increased in Germany. Especially the middle and youngest cohort of our analyses have been those who profited from this development as they experienced their labor market entry during this period. Instead those born in the 1930s entered the labor market after World War II when the general economic situation in Germany was less favorable. As a consequence, they started their career at a lower income level which affected their entire working life (Mayer and Huinink 1990). As a result, also the absolute pension incomes of many retirees of later cohorts are higher compared to earlier cohorts. However, this is especially due to the income privileges these people enjoyed in their early- and mid-career as insiders of the German labor market. If one does not refer to the absolute pension income but to the replacement rates, an increase across time indeed cannot be supported. Thus, the estimated coefficients presented in our table should not be over-interpreted as they especially reflect positive income developments on the German labor market in times of the economic boom experienced in earlier periods. Indeed, additional analyses in which we included the last labor market income of a person as a proxy measure for the different income chances of our cohorts, the significant difference between the cohorts vanishes.

As outlined above, the German welfare ideology is strongly characterized by the model of status maintenance. Consequently, in our models, we can clearly observe that people privileged already on the labor market (that is, employees of higher occupational classes or with higher qualification) are also those who have higher retirement incomes.

Inequalities arising from the German welfare ideology of status maintenance are also reflected in the fact that women's pensions are lower than men's as well as the fact that East Germans' and migrants' pension incomes are lower than West Germans'. All these groups contributed less to the public pension funds as they usually earn less on the labor market and their risk of discontinuous employment histories, either due to family care interruptions or unemployment episodes, is significantly higher.

As Table 7 shows, retirement age plays an important role, too: the later the transition into retirement, the higher is a person's pension income.

People who make use of the (pre-) early retirement pathway after unemployment receive lower pensions than those who do not make use of this pathway. As described above, for people who become unemployed at the age of approximately 58 years, a financially highly secured pathway to early retirement was available within the German pension system for a long time (see also, Buchholz 2006, 2008). The German government

offered strong incentives for individuals to make use of this program. However, in the more recent past, a policy change could be observed in Germany. Latest reforms expect people to prolong their working lives or, otherwise they have to accept higher penalties for early retirement. Indeed, our results show that across cohorts the unemployment pathway to retirement is increasingly connected with pension income losses (model 4). Moreover, our analyses clearly reveal that late career instabilities such as years in unemployment, parttime, self-employment or marginal employment have a strong negative effect on the pension income.

Again, branch of industry and firm size do not have any effect at all for the level of pension income and their inclusion does not improve our estimations. This is not surprising as the main income source of retirees in Germany is still public pensions. Due to their insignificance, the effects of firm size and branch are not presented in Table 7.

CONCLUSIONS

The aim of this paper was to understand how the increasing need for employment flexibility on globalized markets impacted the late career and the economic situation of older people in Germany. Within the comparatively highly regulated labor market, there are only few possibilities for employers to flexibilize their workforce, especially older employees to which older people can be counted, too. However, the German government strongly expanded early retirement possibilities since the 1970s in order to relief the highly regulated national labor market and thus gave employers an instrument to reduce their staff 'socially peaceful'. For a long time, these early retirement systems were very attractive as pension reductions were by far not actuarially neutral.

However, in the light of demographic aging and the high financial burdening of the public pension system, the German government implemented several reforms in the more recent past that restricted the options for early retirement and increased the financial penalties individuals have to accept in case of an early withdrawal from the labor market. Still, it has to be critically asked in how far older individuals are able to meet these new requirements to delay their employment exit as the German government did not increase public efforts in securing the employability of older people at the same time. Thus, it seems likely that, as a consequence of latest pension reforms, the financial situation of older people worsened in Germany and social inequalities increased among the elderly.

Our empirical analyses indicate a slight reversal of early labor market withdrawal in Germany across birth cohorts. However, it has to be noted that most of the older people in Germany still leave the labor market and employment clearly before the official and also flexible retirement age. The reversal could be particularly traced back to the fact that the institutionalized unemployment pathway to early retirement lost in importance in the more recent past. With regard to the development of social inequalities, we find clear signs that latest pension reforms increased social inequalities among the elderly in Germany. Particularly those who are privileged on the labor market could meet the newly set demands of the German pension system to increase their years in employment and to postpone the transition to retirement. In contrast, especially low qualified and already disadvantaged older people fail in fulfilling these requirements and are increasingly penalized for this as they are not able to avoid unemployment in their late career which significantly lowers their pension incomes.

Finally, it has to be mentioned that the effects of the pension reforms implemented by the German government in the more recent past will affect especially future generations of older people. Already with our data we find clear indication that the financial situation of elderly who are disadvantaged on the labor market significantly worsened. This means labor market risks in old age have been privatized in Germany in the past years. However, as our analyses have also shown the pension incomes of the older people in our sample are still relatively high. But these high pension incomes arise from the positive income developments these people enjoyed earlier in their lives. Future generations of retirees are not able to draw back on such privileges. This means, their labor market risks in old age and the respective effects on pension incomes will not be buffered; they have 'to pay the price for failing in delaying retirement'. As long as the German government only expects elderly to work longer, but does not invest in the improvement of the employability of older people (for example by building up an infrastructure for lifelong learning or by focusing more on active labor market policies) it seems very likely that retirees' situation in Germany will significantly worsen and social inequalities in old age will clearly increase.

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APPENDIX

Table 2: Women's and men's transition to first unemployment in the late career (logistic regression model)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Constant</i>	-3.71***	-3.29***	-3.51***	-3.65***	-3.28***	-3.17***
<i>Age</i>						
50-54 (ref.)	--	--	--	--	--	--
55-57	0.44***	0.47***	0.49***	0.50***	0.47***	0.47***
58-59	0.68***	0.72***	0.77***	0.76***	0.73***	0.73***
60-61	0.18	0.28	0.32*	0.31*	0.26	0.26
62 plus	-0.11	0.09	0.15	0.14	0.01	0.01
<i>Cohorts</i>						
1934-39 (ref.)	--	--	--	--	--	--
1940-45	-0.02	0.05	-0.05	-0.05	0.05	-0.01
1946-51	-0.49***	-0.40***	-0.39***	-0.39***	-0.36***	-0.60***
<i>Characteristics of career development and current job</i>						
Unemployment experience	0.13***	0.12***	0.12***	0.13***	0.11***	0.11***
Treiman prestige					-0.01**	-0.01**
Part-time employed		-0.10	0.03	0.01		
Marginal-employed		-0.44	-0.40	-0.42		
Missing employment information		-0.04	-0.07	-0.04		
<i>Origin</i>						
Western Germany (ref.)	--	--	--	--	--	--
Eastern Germany	0.86***	0.79***	0.88***	0.85***	1.00***	1.00***
Migrants	0.48***	0.22**	0.12	0.14	0.30***	0.31***
<i>Sex</i>						
Man (ref.)	--	--	--	--	--	--
Woman	-0.03	0.03	0.20**	0.17*	-0.07	-0.06
<i>Occupational class</i>						
Self-employed		-1.48***	-1.39***	-1.36***		
Higher service class		-1.01***	-0.78***	-0.75***		
Lower service class		-0.69***	-0.30**	-0.27**		
Routine non-manual employees		-0.48***	-0.33**	-0.32**		
Masters, technicians		0.05	0.04	0.02		
Skilled manual workers (ref.)		--	--	--		
Un- and semi-skilled workers		-0.24**	-0.12	-0.12		
Missing occupational class		0.18	0.42	0.30		
<i>Branch of industry</i>						
Extractive sector			0.09	0.06		
Transformative sector			0.31***	0.31***		
Services (ref.)			--	--		
Social services			-0.92***	-0.93***		
Missing branch of industry			-0.13	-0.20		
<i>Firm size</i>						
Up to 19 employees				0.07		
20 to 199 employees				0.37***		
200 to 1,999 employees				--		
More than 2,000 employees				0.24**		
Missing firm size				-0.39		

Table 2: continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Qualification</i>						
Lower secondary degree without occupational qualification					0.02	-0.20
Lower secondary degree with occupational qualification (ref.)					--	--
Upper secondary degree without occupational qualification					-0.14	-0.72
Upper secondary degree with occupational qualification					-0.28***	-0.49*
College or university degree					-0.81***	-0.89**
<i>Qualification* Cohort 1940-45</i>						
Lower secondary degree without occupational qualification						0.29
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						0.67
Upper secondary degree with occupational qualification						0.09
College or university degree						0.19
<i>Qualification* Cohort 1946-51</i>						
Lower secondary degree without occupational qualification						0.49*
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						0.79
Upper secondary degree with occupational qualification						0.47
College or university degree						-0.01
<i>Number of events</i>	746	746	746	746	746	746
<i>Log likelihood ratio</i>	174.73	274.28	378.98	392.21	251.47	259.61

Notes: significant at * $\alpha \leq 0.1$, ** $\alpha \leq 0.05$, *** $\alpha \leq 0.01$.

Table 3: Women's and men's transition to reemployment (logistic regression model)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Constant</i>	-0.45**	-0.38	-0.04	1.33**	-0.37	-0.43*
<i>Age</i>						
50-52 (ref.)	--	--	--	--	--	--
53-54	-0.47**	-0.47**	-0.49**	-0.53***	-0.46**	-0.47**
55-57	-1.39***	-1.36***	-1.38***	-1.36***	-1.36***	-1.37***
58-59	-3.16***	-3.15***	-3.18***	-3.15***	-3.15***	-3.16***
60-61	-2.88***	-2.86***	-2.87***	-2.89***	-2.88***	-2.92***
62-63(M6: 62 plus)	-5.72***	-5.70***	-5.71***	-5.72***	-5.72***	-5.77***
64 plus	-5.59***	-5.57***	-5.57***	-5.54***	-5.60***	-5.69***
<i>Cohorts</i>						
1934-39 (ref.)	--	--	--	--	--	--
1940-45	0.03	-0.00	-0.04	-0.13	-0.00	0.02
1946-51	-0.03	-0.04	-0.05	-0.18	-0.06	0.03
<i>Origin</i>						
Western Germany (ref.)	--	--	--	--	--	--
Eastern Germany	0.12	0.11	0.10	0.05	0.02	0.08
Migrants	-0.83***	-0.79***	-0.79***	-0.83***	-0.65***	-0.61***
<i>Sex</i>						
Man (ref.)	--	--	--	--	--	--
Woman	-0.56***	-0.47***	-0.46***	-0.52***	-0.49***	-0.47***
<i>Occupational class</i>						
Self-employed		0.96**	0.73*	1.11**		
Higher service class		0.36	0.29	0.48		
Lower service class		-0.32	-0.38	-0.39		
Routine non-manual employees		-0.09	-0.23	-0.15		
Masters, technicians		0.17	0.19	0.51		
Skilled manual workers (ref.)		--	--	--		
Un- and semi-skilled workers		-0.16	-0.23	-0.20		
Missing occupational class		-0.50*	0.25	0.56		
<i>Branch of industry</i>						
Extractive sector			-0.02	0.08		
Transformative sector			-0.31*	-0.34*		
Services (ref.)			--	--		
Social services			-0.35	-0.39		
Missing branch of industry			-1.14**	-0.70		
<i>Firm size</i>						
Up to 19 employees				-1.28***		
20 to 199 employees				-1.06**		
200 to 1,999 employees (ref.)				--		
More than 2,000 employees				-1.13**		
Missing firm size				-2.03***		
<i>Qualification</i>						
Lower secondary degree without occupational qualification					-0.51**	-0.79**
Lower secondary degree with occupational qualification (ref.)					--	--
Upper secondary degree without occupational qualification					-0.13	-7.47
Upper secondary degree with occupational qualification					-0.10	0.61
College or university degree					0.28	1.23**

Table 3: continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Qualification* Cohort 1940-45</i>						
Lower secondary degree without occupational qualification						0.54
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						6.47
Upper secondary degree with occupational qualification						-1.18**
College or university degree						-0.85
<i>Qualification* Cohort 1946-51</i>						
Lower secondary degree without occupational qualification						0.21
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						7.91
Upper secondary degree with occupational qualification						-0.70
College or university degree						-1.42**
<i>Number of events</i>	265	265	265	265	265	265
<i>Log likelihood ratio</i>	539.81	555.19	563.21	586.93	549.19	563.84

Notes: significant at * $\alpha \leq 0.1$, ** $\alpha \leq 0.05$, *** $\alpha \leq 0.01$.

Table 4: Risk of downward mobility in the late career (logistic regression model)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Constant</i>	-2.83***	-2.79***	-2.82***	-2.80***	-2.36***	-2.29***
<i>Age</i>						
50-54 (ref.)	--	--	--	--	--	--
55-57	0.08	0.06	0.04	0.04	0.05	0.05
58-59	-0.22***	-0.27***	-0.30***	-0.31***	-0.27***	-0.28***
60-61	-0.31***	-0.37***	-0.41***	-0.43***	-0.37***	-0.39***
62-63	-0.93***	-1.00***	-1.06***	-1.07***	-0.99***	-1.01***
64 plus	-1.36***	-1.52***	-1.71***	-1.64***	-1.52***	-1.55***
<i>Cohorts</i>						
1934-39 (ref.)	--	--	--	--	--	--
1940-45	0.11*	0.11*	0.10	0.09	0.11*	-0.03
1946-51	0.17**	0.12	0.08	0.03	0.12*	0.08
<i>Characteristics of current/last job</i>						
Previously inactive	-3.00***	-3.00***	-3.01***	-2.97***	-3.00***	-2.99***
Previously unemployed	-0.62***	-0.64***	-0.65***	-0.65***	-0.65***	-0.65***
Part-time employed			0.50***			
Marginal-employed			0.59***			
Missing employment information	0.65**	0.64**	0.65**	0.63**	0.38	0.40
Job change	0.11	0.11	0.07	0.08	0.09	0.09
Missing job change	1.14*	1.07*	1.08*	1.10*	0.93	0.94
Treiman prestige					-0.02***	-0.02***
<i>Sample</i>						
Western Germany (ref.)	--	--	--	--	--	--
Eastern Germany	0.26***	0.31***	0.38***	0.30***	0.41***	0.42***
Migrants	0.33***	0.15**	0.19***	0.15**	0.22***	0.22***
<i>Sex</i>						
Man (ref.)	--	--	--	--	--	--
Woman	0.30***	0.37***	0.22***	0.38***	0.33***	0.34***
<i>Occupational class</i>						
Higher service class		-0.73***	-0.69***	-0.70***		
Lower service class		-0.48***	-0.43***	-0.44***		
Routine non-manual employees		-0.31***	-0.34***	-0.32***		
Masters, technicians		-0.23	-0.23	-0.23		
Skilled manual workers (ref.)		--	--	--		
Un- and semi-skilled workers		0.10	0.08	0.11		
Missing occupational class		0.12	-0.21	-0.21		
<i>Branch of industry</i>						
Extractive sector			0.11	0.10		
Transformative sector			0.00	-0.04		
Services (ref.)			--	--		
Social services			-0.15**	-0.14**		
Missing branch of industry			0.35**	0.30*		
<i>Firm size</i>						
Up to 19 employees				0.04		
20 to 199 employees				0.27***		
200 to 1,999 employees				0.23**		
More than 2,000 employees (ref.)				--		
Missing firm size				0.18		

Table 4: continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Qualification</i>						
Lower secondary degree without occupational qualification					0.02	-0.12
Lower secondary degree with occupational qualification (ref.)					--	--
Upper secondary degree without occupational qualification					-0.18	0.33
Upper secondary degree with occupational qualification					-0.13*	-0.19
College or university degree					-0.27***	-0.48**
<i>Qualification* Cohort 1940-45</i>						
Lower secondary degree without occupational qualification						0.25*
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						-0.62
Upper secondary degree with occupational qualification						0.02
College or university degree						0.44*
<i>Qualification* Cohort 1946-51</i>						
Lower secondary degree without occupational qualification						0.17
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						-0.66*
Upper secondary degree with occupational qualification						0.08
College or university degree						0.01
Income	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
<i>Number of events</i>	2,172	2,172	2,172	2,172	2,172	2,172
<i>Log likelihood ratio</i>	1379.95	1475.18	1539.73	1506.40	1477.13	1495.31

Notes: significant at * $\alpha \leq 0.1$, ** $\alpha \leq 0.05$, *** $\alpha \leq 0.01$.

Table 5: Risk of upward mobility in the late career (logistic regression model)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Constant</i>	0.15***	0.17***	0.12	0.10	-0.01	-0.02
<i>Age</i>						
50-54 (ref.)	--	--	--	--	--	--
55-57	-0.25***	-0.22***	-0.21***	-0.21***	-0.21***	-0.21***
58-59	-0.56***	-0.51***	-0.48***	-0.50***	-0.50***	-0.50***
60-61	-1.04***	-0.97***	-0.94***	-0.96***	-0.96***	-0.96***
62-63	-0.76***	-0.69***	-0.63***	-0.68***	-0.68***	-0.68***
64 plus	-2.34***	-2.27***	-2.16***	-2.24***	-2.26***	-2.26***
<i>Cohorts</i>						
1934-39 (ref.)	--	--	--	--	--	--
1940-45	-0.08	-0.05	-0.03	-0.04	-0.04	-0.02
1946-51	-0.25***	-0.16***	-0.12**	-0.14**	-0.14**	-0.09
<i>Characteristics of current/last job</i>						
Previously inactive	-3.74***	-3.76***	-3.77***	-3.76***	-3.76***	-3.76***
Previously unemployed	-2.57***	-2.59***	-2.61***	-2.59***	-2.58***	-2.58***
Part-time employed			-0.09			
Marginal-employed			-0.68***			
Missing employment information	-0.27	-0.28	-0.24	-0.24	-0.17	-0.17
Job change	0.44***	0.40***	0.42***	0.41***	0.40***	0.40***
Missing job change	-0.60	-0.56	-0.61	-0.59	-0.52	-0.52
Treiman prestige					0.01***	0.01***
<i>Sample</i>						
Western Germany (ref.)	--	--	--	--	--	--
Eastern Germany	-0.08*	-0.14***	-0.18***	-0.15***	-0.27***	-0.27***
Migrants	-0.06	0.05	0.01	0.03	-0.01	-0.02
<i>Sex</i>						
Man (ref.)	--	--	--	--	--	--
Woman	-0.14***	-0.17***	-0.14***	-0.16***	-0.17***	-0.17***
<i>Occupational class</i>						
Higher service class		0.58***	0.60***	0.59***		
Lower service class		0.30***	0.31***	0.31***		
Routine non-manual employees		0.13**	0.17***	0.17***		
Masters, technicians		0.36***	0.37***	0.36***		
Skilled manual workers (ref.)		--	--	--		
Un- and semi-skilled workers		-0.06	-0.04	-0.04		
Missing occupational class		-0.09	0.07	0.06		
<i>Branch of industry</i>						
Extractive sector			0.06	0.06		
Transformative sector			0.10**	0.12**		
Services (ref.)			--	--		
Social services			0.11**	0.11**		
Missing branch of industry			-0.08	-0.06		
<i>Firm size</i>						
Up to 19 employees				-0.03		
20 to 199 employees				-0.06		
200 to 1,999 employees				0.07		
More than 2,000 employees (ref.)				--		
Missing firm size				-0.07		

Table 5: continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Qualification</i>						
Lower secondary degree without occupational qualification					-0.01	0.02
Lower secondary degree with occupational qualification (ref.)					--	--
Upper secondary degree without occupational qualification					-0.24*	-0.08
Upper secondary degree with occupational qualification					0.03	0.01
College or university degree					0.44***	0.57***
<i>Qualification* Cohort 1940-45</i>						
Lower secondary degree without occupational qualification						-0.01
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						-0.24
Upper secondary degree with occupational qualification						-0.02
College or university degree						-0.09
<i>Qualification* Cohort 1946-51</i>						
Lower secondary degree without occupational qualification						-0.10
Lower secondary degree with occupational qualification (ref.)						--
Upper secondary degree without occupational qualification						-0.24
Upper secondary degree with occupational qualification						0.04
College or university degree						-0.26*
Income	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
<i>Number of events</i>	4,954	4,954	4,954	4,954	4,954	4,954
<i>Log likelihood ratio</i>	4600.00	4683.50	4708.96	4695.11	4716.50	4722.23

Notes: significant at * $\alpha \leq 0.1$, ** $\alpha \leq 0.05$, *** $\alpha \leq 0.01$.

Table 6: Women's and men's transition to retirement (logistic regression model)

	Model 1	Model 2	Model 3	Model 4
<i>Constant</i>	-4.20***	-3.81***	-4.18***	-4.40***
<i>Age</i>				
50-57 (ref.)	--	--	--	--
58-59	0.61***	0.60***	0.61***	0.54***
60-61	2.88***	2.91***	2.91***	2.83***
62-63	2.45***	2.51***	2.50***	2.48***
64 plus	3.40***	3.53***	3.46***	3.52***
<i>Cohorts</i>				
1934-39 (ref.)	--	--	--	--
1940-45	-0.46***	-0.43***	-0.41***	-0.46***
1946-51	-1.09***	-1.04***	-1.00***	-1.04***
<i>Sample</i>				
Western Germany (ref.)	--	--	--	--
Eastern Germany	0.04	0.00	0.12	0.04
Migrants	-0.18**	-0.34***	-0.30***	-0.36***
<i>Sex</i>				
Man (ref.)	--	--	--	--
Woman	0.23***	0.21***	0.17**	0.13
<i>Occupational class</i>				
Self-employed		-1.06***		
Higher service class		-0.70***		
Lower service class		-0.44***		
Routine non-manual employees		-0.21*		
Masters, technicians		-0.30		
Skilled manual workers (ref.)		--		
Un- and semi-skilled workers		-0.12		
Missing occupational class		-0.40**		
<i>Qualification</i>				
Lower secondary degree without occupational qualification			0.12	0.13
Lower secondary degree with occupational qualification (ref.)			--	--
Upper secondary degree without occupational qualification			-0.09	0.01
Upper secondary degree with occupational qualification			-0.12	-0.05
College or university degree			-0.53***	-0.49***
<i>Characteristics of the late career</i>				
Unemployment experience				0.14***
Part-time experience				0.03**
Experience of marginal employment				-0.11**
Experience of self-employment				-0.07***
Currently unemployed	1.14***	1.06***	1.09***	0.67***
Employed at age 50	0.27**	0.19	0.32***	0.63***
<i>Partner information</i>				
Partner unemployed	0.01	0.01	0.01	0.02
Partner not employed	0.25	0.21	0.26	0.28
Partner employed (ref.)	--	--	--	--
Missing Partner information	0.05	0.04	0.04	0.05
<i>Number of events</i>	1275	1275	1275	1275
<i>Log likelihood ratio</i>	2641.79	2709.80	2675.93	2757.12

Notes: significant at * $\alpha \leq 0.1$, ** $\alpha \leq 0.05$, *** $\alpha \leq 0.01$.

Table 7: Absolute pension income (linear regression)

	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Constant</i>	7.41***	6.82***	7.68***	7.36***	8.62***
<i>Age</i>					
50-57 (ref.)	--	--	--	--	--
58-59	1.92**	1.76**	1.66*	1.85**	2.42***
60-61	1.33**	1.34**	1.42**	1.57**	2.61***
62-63	3.66***	3.40***	3.31***	3.45***	4.74***
64 plus	4.10***	3.53***	3.40***	3.59***	6.27***
<i>Cohorts</i>					
1934-39 (ref.)	--	--	--	--	--
1940-45	1.36***	0.87*	1.01**	1.12**	1.84***
1946-51	3.20***	2.78***	2.84***	3.63***	4.07***
<i>Sample</i>					
Western Germany (ref.)	--	--	--	--	--
Eastern Germany	-2.92***	-2.65***	-4.10***	-4.03***	-3.00***
Migrants	-2.63***	-0.88	-1.62***	-1.63***	-2.91***
<i>Sex</i>					
Man (ref.)	--	--	--	--	--
Woman	-4.89***	-4.61***	-4.31***	-4.37***	-3.80***
<i>Occupational class</i>					
Self-employed		-0.60			
Higher service class		8.15***			
Lower service class		4.30***			
Routine non-manual employees		2.14***			
Masters, technicians		4.99***			
Skilled manual workers (ref.)		--			
Un- and semi-skilled workers		-0.28			
Missing occupational class		-0.12			
<i>Qualification</i>					
Lower secondary degree without occupational qualification			-1.01*	-1.04*	
Lower secondary degree with occupational qualification (ref.)			--	--	
Upper secondary degree without occupational qualification			-0.44	-0.29	
Upper secondary degree with occupational qualification			1.11*	1.22*	
College or university degree			6.43***	6.41***	
<i>Characteristics of the late career</i>					
Unemployment experience					-0.53***
Part-time experience					-0.41***
Experience of self-employment					-0.49***
Experience of marginal employment					-0.68***
Employed at age 50	1.89**	0.64	0.96	1.04	0.35
Unemployed at age 58	-1.09*	-0.95	-0.65	0.17	0.99
<i>Characteristics of the late career*</i>					
<i>Cohort 1940-45</i>					
Unemployed at age 58				-0.81	-1.00
<i>Characteristics of the late career*</i>					
<i>Cohort 1946-51</i>					
Unemployed at age 58				-6.54***	-6.11**
<i>Number of events</i>	1278	1278	1278	1278	1278

Notes: significant at * $\alpha \leq 0.1$, ** $\alpha \leq 0.05$, *** $\alpha \leq 0.01$.